

ACD MULTIMEDIA CUSTOMER CONTACT  
ROUTING WITH DELAY ANNOUNCEMENTS

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Field of the Invention

This is a non provisional application, from  
provisional application Serial No. 60/122,278, filed  
March 1, 1999. The field of the invention relates to  
10 telecommunication systems and more particularly to  
automatic call distributors.

Background of the Invention

Automatic call distribution systems are known.  
15 Such systems are typically used in an organizational  
context as a means of distributing telephone calls  
among a group of agents of the organization. Agents  
are typically segregated into groups to serve  
particular call targets within an organization.  
20 Often the organization disseminates a single  
telephone number to its customers and to the public in  
general as a means of contacting the organization. As  
calls are directed to the organization from the public  
switch telephone network (PSTN), the automatic call  
25 distribution system directs the calls to its agents  
based upon some algorithm, typically based upon  
availability. For example, where all agents are  
considered equal, the automatic call distributor (ACD)  
may distribute the calls based upon which agent  
30 position (telephone) has been idle the longest.

While ACDs are effective in handling phone calls,  
they typically provide no mechanism for handling

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inquiries and contacts through other mediums (e.g., e-mail, the Internet, etc.). Accordingly, a need exists for a method of coordinating agent activity for calls routing over a number of mediums.

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### Summary

A method and apparatus are provided for routing multimedia calls within an automatic call distributor system having a automatic call distributor coupled to  
10 the public switched telephone network and a host coupled to the Internet. The method includes the steps of receiving an Internet call from an Internet caller by the host through the Internet, requesting an agent assignment for handling the Internet call from the  
15 automatic call distributor coupled to the public switched telephone network and transferring the Internet call to a terminal of the agent assigned by the automatic call distributor.

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### Brief Description of the Drawings

FIG. 1 is a block diagram of an automatic call distributor in accordance with an illustrated embodiment of the invention; and

FIG. 2 depicts a webpage that may be used by the  
25 automatic call distributor of FIG. 1;

FIG. 3 depicts Internet options that may be used by the system of FIG. 1; and

FIG. 4 depicts an information presentation window used by the system of FIG. 1.

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### Detailed Description of a Preferred Embodiment

FIG. 1 is a block diagram of a telephone system 10, generally, in accordance with an illustrated embodiment of the invention. Under the illustrated embodiment, an automatic call distributor (ACD) 14  
5 (e.g., a TRANSCEND ACD sold by Rockwell International) may receive calls from any of a number of callers 20 and automatically distribute the calls to any of a number of agents 22, 24.

Under the illustrated embodiment, calls may be  
10 received at the ACD 14 from the PSTN 12. As a call arrives, it may be delivered with associated call information (e.g., ANI, DNIS, etc.). As a call is detected, it may be assigned a unique call identification number by the ACD 14.

Based upon the associated call information, the  
15 ACD 14 may determine a call target intended by a caller (not shown) calling from a remotely located telephone 20. For example, an operator (not shown) of the ACD system 10 may provide a number of telephone numbers  
20 based upon function (e.g., a first telephone number may be provided to contact sales, a second telephone number may be provided for service, etc.). A CPU 32 within the ACD 14 may identify the call target based upon a content of the associated call information.

Each call target may have a number of agents 22,  
25 24 designated for handling calls to that call target. The agents 22, 24 designated for a particular call target together form an agent group.

Once a call target (and agent group) has been  
30 identified, the CPU 32 functions to identify an agent within the group to handle the call. Any of a number of algorithms may be used to identify the agent 22, 24.

An agent may be designated based upon the most skilled for that call type or upon which agent has been idle the longest.

Once an agent has been identified, the CPU 32 may  
5 instruct a switch 34 within the ACD 14 to form a connection between a trunk line upon which the call was detected and the identified (designated) agent 22, 24.

The CPU 14 may also send a call completion message to the host 16. The call completion message may  
10 contain the associated call information, designated agent and call identifier to the host. The host 16 by reference to ANI information of the associated call information may identify customer records associated with that ANI information and display the identified  
15 call records on a terminal 26, 28 of the designated agent.

In accordance with another feature of the illustrated embodiment, the host 16 may maintain a website 36 for the convenience of customers. On the  
20 website 36, the host 16 may offer information (FIG. 2) on a number of products. The information may be provided in the form of an interactive webpage 58. A series of product options 40, 44, 48 may be provided in a first area of the webpage 58. A product option may  
25 be selected by activation of an associated softkey 38, 42, 46.

Alternatively, an product keyword may be entered into another area 52. Activation of an associated softkey 50 may cause a search engine (not shown) of the  
30 website 36 to search the website for information related to the entered keyword.

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As a further alternative, a website user (also referred to herein as a caller) may request a conversation with an agent of the ACD system 10. A descriptive header 56 may be provided instructing the caller to activate a softkey 54 to initiate such conversation.

Upon activating the softkey 54 requesting a conversation, a conversational webpage 60 (FIG. 3) may be presented to the caller. The caller may be offered the option of initiating a off-line conversation using e-mail or a real-time conversation. The e-mail option may be initiated by activation of a softkey 62 with an e-mail label. A real-time conversation may be initiated by activation of a second softkey 64.

Upon activation of the e-mail softkey 62, a text box is presented to the caller within which the caller may enter a message. The text box may have associated text asking the caller for a name and a telephone number for a return call. Any text entered by the caller would be stored by the host 16 for subsequent response by an agent. A path for a return message may be provided by a telephone number entered by the caller or an agent may return the call as an e-mail message using an Internet Protocol (IP) address retrieved by the initial access request to the website 36 from the caller.

Alternatively, the caller may select a real-time conversation by activating the conference softkey 64. The conference softkey 64 may be used to activate features where the caller and assigned agent may exchange audio information as well as exchange text or drawings through an interactive window. The creation

of the interactive audio and visual information may be executed under any of a number of different protocols (e.g., NetMeeting provided by Microsoft Corp.).

Under the illustrated embodiment, e-mail messages  
5 or real-time conferences are handled in a manner equivalent to a conventional telephone call. For example, a conventional call arrives over trunk lines 30, is assigned a call identifier and may be placed in a call queue maintained by the CPU 32. When an agent  
10 becomes available, the CPU 32 selects the agent and instructs the switch 34 to connect the call to the selected agent.

With regard to e-mail messages or real-time conferences, the host 16 may send a simulated call  
15 request to the CPU 32. The host 16 may send the call request over a TCP/IP connection 38 to a call application operating on the CPU 32 or may seize a connection on an incoming trunk 40 to the ACD 14 and send a set of simulated associated call information to  
20 the ACD 14.

In either case, the CPU 32 assigns a call identifier and assigns an agent to the call. Upon selection of an agent, the CPU 32 sends a call completion message to the host 16 including an  
25 identifier of the selected agent.

With the call completion message (and identity of the assigned agent), the host 16 may either forward the e-mail message from the caller or act to complete the real-time conference connection between the caller and  
30 assigned agent 22, 24.

Also, upon selecting an agent, the CPU 32 may instruct the switch 34 to connect the selected agent

22, 24 to a dummy load. Connection of the selected agent to a dummy load may be used to prevent the agent from being assigned to another call while the agent is handling the e-mail or real-time conference. A release  
5 button 23, 25 may be provided on a telephone of the agent 22, 24 to signal the CPU 32 when the e-mail or real-time conference is completed and the agent is ready for another call.

While the caller is waiting for assignment of an  
10 agent, a caller over a conventional voice channel may be presented with information and options regarding the call target. Similarly, a caller requesting a real-time conference may also be presented with information and options.

15 For example, a screen 70 (FIG. 4) may be presented to a caller waiting for a real-time conference. A first window 72 may present information about the real-time conference. An estimated time may be presented as to the time remaining until an assigned agent would be  
20 available to participate in the conference. Alternatively, the first window may request information from caller (e.g., an account number, product information, etc.). A second window 74 may be provided for entry of information by the caller.

25 A third window 76 may be provided for presentation of graphics to the caller as the caller waiting for the real-time conference. A animated cartoon figure may provided for the amusement of the caller and to maintain the interest of the caller as the caller  
30 waits.

A specific embodiment of a method and apparatus for a method of allocating resources within an

